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DIALECTICS OF EFFICIENT CHANGE MANAGEMENT IN THE REGIONAL SOCIAL SYSTEMS¹

The research has placed emphasis on the role of the social infrastructure sectors, providing social services, which facilitate human potential development in a modern state. Theoretical positions of the scientist considering the nature of social benefits and necessity of the government support for the social sphere has been summarized in the article.

The state of the Russian social infrastructure sectors has been considered and the analysis of their performance compared to these of the social infrastructure sectors in other countries has been conducted in the research work. Taking into consideration the performance ratings of the effectiveness of the national education systems, the countries around the world concerning the effectiveness of the health system, the countries around the world concerning the social development level in 2014, the authors have proposed the conceptual approach that makes it possible to consider the correlation and interrelation of the level of the government financing of the social sphere and the dynamics of the contribution of social infrastructure sectors in the development of the human capital, ensuring the gross domestic product increase. The necessity of making innovative changes in the socio-economic systems of the social infrastructure sectors, to improve their performance, taking into account the results obtained, in the first place, in health care, has been well-grounded and theoretical approaches to the changes management in the socio-economic systems has been studied in the article. The theoretical approaches to the changes management in the socio-economic systems have been studied by the authors.

Based on the conducted studies and the formed theoretical basis for improving the level of changes management in open socio-economic systems, for the purpose of development of the theoretical and methodological approaches to changes management as applied to health care sphere, optimization model of management of health care organizations by way of ranking of manageable and unmanageable changes has been proposed.

The possibility of using management optimization by way of ranking of manageable and unmanageable changes in the health care management at different levels has been confirmed with high-performance indicators at the micro-, meso- and macro levels in the sector, by the example of implementation of the national project "Health" and innovative organizational changes facilitating the return to work of patients of the working age, which are involved in the gross domestic product formation in the city of Yekaterinburg.

Keywords: ranking, manageable and unmanageable changes, efficient correlations, high performance, sustainable development

Evaluation of financing dynamics of social spheres and their impact on the social development

Socio-economic state of a modern society to the utmost depends on the level of development of science, education and medical services rendered to the population, that contribute to formation of the intellectual rent, depending on the human capital quality. In terms of transition of the country economy to the innovative way of the development, sectors, rendering social services to the population, should

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be considered separately, from the point of view of their functioning efficiency and their contribution to human potential development and socio-economic development of the state.

An active development of the public goods sector demonstrates an enhancing importance of the sphere in a common economic development, both at the macro-level and the level of mesotransactors. A public economic sector, being a dynamic medium, naturally reflects the public evolution mechanisms, caused by the corresponding institutional transformations. The self-development of the public sector represents the complicated sequence of the stages of the immanent adaptation of the system to the evolutionary development of the whole socio-economic macrostructure, in the framework of which it is functioning, at the retention of the basic institutional principles, which determine the changes trajectory. The immanent rules of evolution of the public goods sector at present are insufficiently disclosed, and systematization of the research and statistic data on matter and the analysis of them are topical both from the position of summarizing of the scientific experience and revealing of the mainstreams of institutional regulation of its self-development [1, p. 73, 88].

The nature of social benefits and necessity of the active government support for the social sphere have been considered in a number of theories and concepts [2, p. 94-97].

The concept of the public goods ("the guarded goods") gives a definition of their properties – non-excludability and non-competitiveness, which motivates the government activity. A very broad interpretation of the public goods is considered to be its shortcoming.

"Meritory goods" concept. R. Masgrave, R.S. Grinberg, A. Ya. Rubinstein and other researchers of meritorics consider the social attitudes in accordance with some "correct" preferences of the individuals, which are not revealed with the existing market mechanisms.

"Baumolev economy" concept considers the phenomenon of the "price disease" for the number of goods (in the first place, for the goods referring to the public goods), which costs are growing faster than the prices. In this case, it is necessary to arrange the government regulation in order to ensure both the economic growth and the stable social sense of well-being of the population.

"Economic socio-dynamics" concept. Its characteristic feature is the use of the principle of complementarity of the individual and social utility. The mission of the state, aiming to maximize its own function of the social utility, is the implementation of the irredundant public interests.

The theory of "the guarded goods" markets is based not only on consideration of a general approach, which makes it possible to unite the economic descriptions of the specific markets of the goods and services and to find the universal answer in relation to these goods features, motivation of the public guardianship and economic mechanisms of its implementation. This theory proceeds from complementarity of utilities, and taking into account maximization of social utility function, turns the relevant budget costs, from the irrevocable expenses into social investments, ensuring the economic growth (A. Ya. Rubinstein (2008), p. 49-52) [2, p. 99-110].

In our opinion, it is the theory of "the guarded goods" markets that reflects the significance of the social services in the scope of the society, in the most comprehensive way.

Both the social and economic development of the country, as well the gross domestic product increase and national safeguarding of the state depend on the level of development of the socio-economic systems of the social infrastructure sectors and social services effectiveness. To determine the directions of raising the performance effectiveness of the socio-economic systems of the social infrastructure sectors, one needs to evaluate its real state and to conduct the analysis of their performance compared to these of the social infrastructure sectors in other countries.

The rated standard of the minimal government expenditures both for education and health care, in view of the world trends, should not be less than 6 to 7 % of the gross domestic product (GDP). The data

Table 1

Shares in the Expenditures of Russia and Sverdlovsk Region for Education and Health Care in 2008-2012 and Sverdlovsk Region in 2013, % of GDP*

Sector	Russian Federation					Sverdlovsk region					
	2008	2009	2010	2011	2012	2008	2009	2010	2011	2012	2013
Education	4	4.6	4.2	4.1	4.2	3.2	3.9	3.2	3.0	3.0	3.2
Health care	3.1	3.5	3.1	2.9	3.1	2.8	2.33	1.95	2.4	2.7	2.7

* Information: Russian Statistical Yearbook. 2014: Stat. Digest. / Rosstat. Moscow, 2014. 693 p.; Russian Statistical Yearbook. 2014: Stat. Digest. / Sverdlovsk Oblstat. Yekaterinburg, 2014.

of Table 1 illustrate the analysis of financing of the most important social sphere sectors — education and health care in Russia.

The presented analysis is an evidence of the even more insufficient level of expenditures for education and health care in Sverdlovsk region, compared to rather low All-Russian performance.

The dynamics of the most significant social sphere sectors (education and health care) in the added value which is the basis for the gross domestic product calculation — the most significant overall index of economy development in Russia is as follows: for the year of 2005 — 5.7 %, 2010 — 5.8 %, 2012 — 5.7 %, 2013 — 5.8 %²; in Sverdlovsk region: for the year of 2009 — 9.2 %, 2010 — 7.6 %, 2011 — 7.4 %, 2012 — 7.3 %, 2013 — 8.1 %³.

At the same time, the return of financial investments in the human capital (education and health care) in developed countries gives from 35 to 45 % of GDP [3].

The performance of Russia in the world rankings of education, health care and social development for the year of 2014 is as follows: No. 13th spot of 40 feasible spots in the performance rankings of the effectiveness of the national education systems⁴, the last spot of 51st feasible spots in the performance rankings of the countries around the world concerning the effectiveness of the health system⁵, No. 80th spot of the 132 feasible spots in the performance rankings of the countries around the world concerning the social development level⁶.

The total index of the performance rankings of the effectiveness of the national education systems for the year of 2014 is calculated as the weighted total for two basic criteria, such as cognitive skills and educational attainment. It demonstrates achievements in the sphere of education of 40 countries around the world, having different levels of socio-economic development. Russia assumes No. 13th spot in the rankings, of 40 ty feasible spots, between Germany (No. 12th spot) and the USA (No. 14th spot).

The educational system of Russia is among the top 10 leading educational systems in Europe (No. 8th spot); for comparison, Russia assumed No. 20th spot in the rankings in the year of 2012⁷. The carried out analysis is an evidence of a raise of rankings of the national education system at the world level, as the result of the positive changes and implemented reforms.

At the same time, to build up the national wealth concerning its intellectual component and improvement of the sector performance, on the one hand, the sharp increase of the government expenditures for material and technical support of the social spheres in view of both the world trends (the share of the minimal government expenditures for education should be 6 to 7 % of the GDP) and raise of the remuneration of labour of the employees is required. The adequate remuneration of the teachers' labour should depend on their contribution in the sphere of knowledge formation.

On the other hand, year after year more importance is attached to the issue of the further progressive changes in the sphere of education, promoting the competitiveness of the educational services both in the Russian and world market and development of the whole educational system in an innovative way.

The total index of the countries around the world performance rankings of the effectiveness of the health care systems for the year of 2014 includes three main factors which determine effectiveness of the health care system of this or that country. They are: average life expectancy at birth, the government expenditures as a percent of the GDP, per capita, and the cost of the medical services, per capita. The research performed covers 51 states with the population of each of them more than 5 million people and average life expectancy over 70 years.

² Russian Statistical Year-book. 2014: Stat. Digest / Rosstat. M., 2014. 693 p.

³ Russian Statistical Year-book. 2014: Stat. Digest / Sverdlovsk Oblstat. Yekaterinburg, 2014.

⁴ Pearson. Global Index of Cognitive Skills and Educational Attainment 2014. // Center for humanitarian technologies. Available at: <http://gtmarket.ru/news/2014/06/09/6795>. (date of access: 06.09.2014).

⁵ Bloomberg. The Most Efficient Health Care 2014. // Center for humanitarian technologies. Available at: <http://gtmarket.ru/news/2014/09/22/6887>. (date of access: 22.09.2014).

⁶ The Social Progress Imperative. The Social Progress Index 2014 // Center for humanitarian technologies. Available at: <http://gtmarket.ru/news/2014/04/14/6688>. (date of access: 14.04.2014).

⁷ Pearson. Global Index of Cognitive Skills and Educational Attainment 2014. // Center for humanitarian technologies. Available at: <http://gtmarket.ru/news/2014/06/09/6795>. (date of access: 09.06.2014).

Russia was entered for the first time in the year of 2014 and according to the research results, took the last place having score points of only 22.5. Russia was not included in the previous research because average life expectancy in the country at that time was 69 years, and it is 70.5 years now⁸.

The performance ranking shows the multifactor nature of evaluation of the effectiveness of the health care systems. Thus, one cannot identify the direct relation between the received evaluation and the expenditures for health care, as a percent of the GDP. For example, among the countries with the developed economy, the expenditures for health care in the USA are higher than anywhere else and at the same time they achieved the worst result (No. 44th spot of 51 feasible spots). Apparently, this is due to problems in health care management, in the first place, it concerns the accessibility of the medical aid to the population. At the same time, the high lifespan of the population, at the significant government expenditures for health care, including the expenditures per capita, is observed in the ten top countries that are the leaders among the countries around the world performance ratings of the effectiveness of the health care systems in the year of 2014 (Singapore — No. 1st spot, Hong Kong, Italy, Japan, South Korea, Australia, Israel, France, the United Arab Emirates and Great Britain).

The progressive changes promoting the improvement of the factors of the population health, the raise of effectiveness of the health care, carried out via organization and legal, economic, technological and managerial mechanisms of interaction between the relation subjects, including the coordinative and regulation functions of the government, are the main sources of development of the socio-economic relations in the sphere of healthcare.

The total index of the social development ranking is a combined factor which enables one to measure the level of the public well-being and social progress in the countries around the world and the life quality of the population.

To identify the achievements of this or that country in the sphere of social development, one should take into consideration more than 50 factors, composed of three main groups⁹:

1. Primary needs of an individual, such as food, availability of the basic medical aid, housing, access to water, electricity and sanitary services and level of personal security.

2. Essentials of an individual well-being, such as access to basic knowledge and population literacy standard, access to information and means of communication, health care standard and environmental sustainability.

3. Opportunities for individual development, such as the standard of personal and civil liberties, ensuring of the individual's rights and opportunities to make decisions and implement the potential.

The countries round the world ranking of social development for the year of 2014 were headed by New Zealand. It has shown the best results concerning such factors as political rights, access to information and means of communication, school education, etc. Switzerland assumed No. 2nd spot. It has shown the best results concerning such parameters as environmental sustainability, personal security, life expectancy and religious freedoms. Spot No. 3rd was assumed by Iceland, which has shown the best results concerning both tolerance, social involvement and access to information and means of communication. The major world economies assumed different spots in the ranking. Germany has assumed spot No. 12th, Great Britain — spot No. 13th, Japan — spot No. 14th, the USA — spot No. 16th, France — spot No. 20th, Italy — spot No. 29th, Brazil — spot No. 46th, China — spot No. 90th, India — spot No. 102nd. The traditionally disadvantaged African countries, such as Sudan, Guinea, Burundi, Central African Republic and Chad are at the tail end of the rankings.

Russia has assumed No. 80th spot of 132 feasible spots in the rankings of social development. The relatively low factors of the country are also caused by the low quality of health care, low environmental sustainability, etc. When making the calculations of the multifactor value of the social development index, the most high factors of Russia in such spheres as food, availability of the basic medical aid and educational attainment have been objectively pointed out¹⁰.

The analysis of the presented world rating of education, health care and social development is an evidence of the use of multifactor evaluations, lack of the direct dependence between the financial

⁸ Bloomberg. The Most Efficient Health Care 2014.// Center for humanitarian technologies. Available at: <http://gtmarket.ru/news/2014/09/22/6887>. (date of access: 22.09.2014).

⁹ The Social Progress Imperative. The Social Progress Index 2014 // Center for humanitarian technologies. Available at: <http://gtmarket.ru/news/2014/04/14/6688> (date of access: 14.04.2014).

¹⁰ The Social Progress Imperative. The Social Progress Index 2014 / / Center for humanitarian technologies. Available at: <http://gtmarket.ru/news/2014/04/14/6688> (date of access: 14.04.2014).

investments in the social sphere and the results obtained for the society. Many things depend on the level of management of social sphere sectors. At the same time, the countries with the high-income level, as a rule, also achieve higher rankings of social development.

The factors of Russia received on the basis of the carried out rankings, set one thinking of the social sphere state. L.I. Abalkin had noted that the main thing — the quality of life (moreover, in the broad sense of the word), was not in the center of attention. This is both health conditions of different age groups, educational attainment, ecological environment, housing, etc. [4, p. 171]. For comparison: in 1990 Russia assumed No. 26th spot concerning the index of human potential development, while in 1970-ies, according to UNO annual report about mankind development, the USSR, as regards the standard of life and the index of human potential development, was among the top twenty countries characterized by the most high development. Thus, the country, having the best systems of education and healthcare in the world, in the Soviet time was avant-guard including the level of development of the social sphere sectors.

On the basis of the performed analysis, the authors come to a conclusion that one needs to intensify the implementation of the innovative changes in the social sphere sectors, to improve their performance, taking into account the results obtained, in the first place, in health care.

The authors have developed the conceptual approach that makes it possible to consider, as a complex, the correlation and interrelation, on the one hand, of the level of the government financing of the social sphere in order to raise the human capital and, on the other hand, the dynamics of the contribution of social infrastructure sectors in the development of the human capital, ensuring the gross domestic product increase of the country. It is advisable, on the one hand, to increase government expenditures both for education and health care, in view of the world trends, to 6 to 7 % of the GDP, and on the other hand, to introduce the innovative changes in the socio-economic systems ensuring the raise of the quality features of the human capital and harmonious and innovative development of the state, on a whole.

Theoretical basis of improving the level of changes management in socio-economic systems

In the authors' judgement, the merit of the evolutionary theory of economic changes of Richard R. Nelson and Sydney G. Winter [5, p. 8-9] consists in consideration of organizations activities in the conditions of non-equilibrium states, suggestion of simulation computer models, arrangement of conditions necessary to enrich the theory with the empiric researches. The disadvantage of the approach is limited to lack of proper attention to social aspects of the human factor development.

The ideas of Y. Shumpeter concerning the research of the changes nature and essence have become the most apprehended ones. He has been the first one to consider the economic changes essence as an opportunity to overcome the crisis and drops of industrial production, due to diversion from routine behavior, leading to disbalance, introduction of new technical, organizational, economic and managerial innovations. "Radical" innovations determine the image of significant changes in the world while the "incremental" innovations are filling continuously the changes process [6].

The point of view of P.F. Druker, who has considered non-conformities as an opportunity for innovations by which rather slight efforts can set masses in motion and cause other system changes in economic and social spheres, deserves special attention. P.F. Druker has pointed out a few types of non-conformity:

- non-conformity of economic realities and the sector state (or the sphere of the government management);
- non-conformity between the sector realities (or the sphere of the government management) and their concept;
- non-conformity between the real and perceptible values and the customers' expectations;
- the internal non-conformity in the process rhythm or logic [7].

P.F. Druker gives the examples of non-conformity of economic realities and the problems decisions due to successful innovations, on the example of diametrically opposite health care model of Great Britain (with mainly government system of financing) and the USA (with mainly private system of financing). One proposes to solve the problems due to successful innovations when the concrete disadvantage of the health care system of each of the countries is turned into an advantage. In Great Britain, the most quickly growing and the most popular component of the benefits package, provided to the employees by the employer, has become "The radical innovation". In the USA, in terms of health

care expenditures increase, another innovation has been introduced, namely, “separation”, i.e. the transfer of the whole spectrum of medical services, requiring high expenditures, from hospitals to other places. Thus, in Great Britain an attempt to decrease the planned queue for free medical treatment has been made, while in the USA — expenditures optimization due to arrangement of outpatient surgery centers, hotel groups, etc. has been carried out [7].

G. Mensh has subdivided the innovations for the basic ones, based on technological and non-technological changes of management, culture and public services; the improving innovations and pseudo-innovations [8].

N.L. Marenkov has a peculiar position. He considers the changes to be the specific content of the innovation and reduces the main function of the innovative activity to the changes [9].

B.Z. Milner, in his work “The Concept of the Organizational Changes” goes further. In his discourse, he proposes not to have any differentiation between innovations and any conscious changes, taking place in the organization, as the planned organizational changes are deliberate improvements [10].

In our opinion, one should confirm the correctness of these theses with the effectiveness of the carried out changes. Otherwise, the changes can worsen the situation. For instance, the concept of re-engineering stipulates the fundamental re-thinking over and radical re-development of the company's business-processes, with the aim to sharply improve their performance, namely, the expenditures, quality, services and the speed [11]. Nevertheless, some attempts to apply re-engineering in practice led to negative results, as the introduction of radical changes in some spheres of activity has turned up to be completely unjustified. The example of such re-engineering is the fundamental changes in health care management and financing in Russia, in 1990-ies, when the transition to the progressive system of the obligatory medical insurance has been carried out and the peculiar features of Russia, the necessity to maintain the leading role of the government in organization and functioning of the health care system has not been taken into consideration. As a result, the decrease of the ranking criteria took place: the health care system, being the best in the world during the Soviet period, has moved to the last spot of 51 feasible spots in the countries around the world performance ranking of the effectiveness of health care, in the year of 2014.

Usually, the changes have a complex character. The innovations in one sphere influence the processes that take place in other spheres. That is why it is advisable to take into account the mutual influence of the changes and consequences caused by the innovations implementation as there is correlation and interrelation between the changes of a different type. Thus, implementation of the technological innovations leads to the marketing strategy change and ensures the employees' motivation and raise of qualification. The structural changes may lead to reformation and re-organization of the institution.

The use of the outcomes of the theory of the human relations (Mary Parker Follet and Elton Mayo [12]), considering organization as the social system of connections and relations, motives and its employees' behaviour not only from the point of view of economic motivation, enables one to involve ordinary employees in the implementation of the changes of the organization.

The essence of behavioural approach on the basis of application of behavioural science concepts (including theories of A. Maslow [13], D.C. McClelland [14], F. Herzberg [15] and others) consists in an opportunity to reach the effectiveness both at the level of an employee and an organization on a whole, in case of correct application of science about behavior, theory of needs and motivation. However, this approach allows some inaccuracies in the applied research methods; that is why it is not always valid in terms of a quickly changing environment.

According to the statement of E.M. Korotkov, development is a common principle of the existence of any socio-economic system and can be considered as the irreversible change of an organization [16].

G. Mintzberg considers the changes at the level of organization as the process characterized by the abrupt and disconnected changes of the organization state and structure [17].

L.D. Gitelman presumes that the change consists visible differences between the two successive points of time. They are the differences concerning the situation, the individual, the working group, organization or mutual relations. The nature of those differences is the process of the natural transfer of management from one quality level to another one, which is ensuring the competitive advantages of production or its timely re-orientation for the other markets [18, p. 14].

In contrast to existing approaches to the definition of changes in organizations (mainly from the point of view of the structural changes and organizational reforms) we would like to suggest considering these processes in different spheres of activity, on a more wide scale.

In the first place, one needs to consider the quality changes of the system as a whole, as a result of changing of the quality of its structure elements, different ratio of which may lead both the positive and negative synergetic effect, that is why their implementation should be confirmed with the calculations of the effectiveness.

One can find different interpretations of the notion of “changes management” in the literature. E.A. Utkin considers innovations management as a combination of different functions (such as marketing, planning, organization, and control), each of those is directed to solution of specific and various questions of interaction between different departments of the company [19, p. 94].

L.A. Malysheva interprets organization changes management as the reactive and proactive response of organization to external and internal medium effects, to ensure the maximum correspondence to the conditions that have changed. At the same time, the response represents changing of the functioning methods and the system structure when it is intentionally transferred from one state to another one [20, p. 63].

In our opinion, the notion of “changes management” can be determined as the intentional implementation of the active subjects effects in different spheres of activity, to improve the effectiveness and competitiveness both at the level of organization and the level of the sector, as well as the economy on a whole.

From the position of the system approach, the organization is a socio-economic system. We have already noted that the socio-economic system should be able to improve, response to unfavorable factors and prevent them due mobilization of its resources. The self-regulating organizations of production, infrastructural and social orientation can be considered as the mechanisms of self-regulation and self-development, on the micro-level. The self-regulating organizations fulfil the tasks of the national, regional, municipal and local importance at the account of their own and (or) budget (federal, regional and municipal budget) sources, providing the relevant markets with the goods and the population — with government (national, regional) and municipal services [21, p. 12, 52.].

We consider it advisable, when planning changes management in organization, to be guided by the recommendations of the synergetic theory of management, stipulating the destruction of internal bureaucratic borders (the employees acquire a right to propose their ideas to solve the arising problems) and bringing in balance the variety of managerial organization responses to the variety of the effects and agitations of external medium.

The conducted analysis of the theoretical approaches to the research of changes management in organizations makes it possible to make a conclusion about the necessity of the complex use of the best scientific achievements concerning these problems, in spite of the existing contradictions of the different theories. It is advisable to apply the principle of the process planning, agreed upon with the employees, also taking into consideration multidimensionality and nonlinearity of the processes of the changes management in an organization.

On the basis of the conducted studies of the state and financing of the social sphere sectors and the objective evaluations of the theoretical and methodological approaches to changes management the authors have formed the theoretical basis for improving the level of changes management in organizations as open socio-economic systems, including:

- The complex use of the system, process, programmatic and target, situational, multilevel and integrative approaches;
- development of methodological, methodic and information support of the changes that are being implemented;
- changes management at all the levels, both as a whole and at the level of organization (departments) structural elements, which makes it possible to carry out the system monitoring of the process of the changes management in all the structures of the organization;
- the model construction as an integrated interrelated process of the changes management;
- development of the methodic instrumentation for the evaluation of the effectiveness of management changes, in view of the economic and social interests of the society.

Optimization of management of health care organizations by way of ranking of manageable and unmanageable changes

The objective to implement the changes in the organizations using the innovations ensuring the development and maintaining the functioning sustainability is considered to be the priority one. The organization as the socio-economic system has two opposite by nature objectives. They are:

- Maintenance of the stable functioning;
- the tendency to improvement by way of changes using the innovations ensuring the new quality of development.

The solution of the objectives is seen in supporting the balance of the changes processes and stable functioning: maintenance of organization sustainability during the changes period, due to development renovation and observance of the set relations and proportions of organizational and economic processes, in accordance with the requirements of the changes that are being implemented.

In our opinion, when managing the changes in the organizations, one should take into consideration the recommendations of synergetics and actively use the interdisciplinary approach, to create the integral picture of the institution state and adopt different approaches to the specific organization activity.

For the development of the theoretical and methodological approaches to changes management as applied to health care sphere at all levels of management, the authors have proposed optimization of management of health care organizations by way of ranking of manageable and unmanageable changes.

The successful changes management at the sector level in many ways depends on the implementation of changes management in health care organizations in Russia, in view of their activity specifics and the objectives that are facing the sector. Changes management in health care organizations is based on the synthesis of multilevel and integrative approaches, ensuring achievement of the synergetic effect from innovations implementation on macro-, meso- and micro-level.

In this connection consideration of the problems of self-organization, self-government and self-regulation and active position of the institution concerning concentration of the employees' initiatives in different directions of activity, for simultaneous innovations implementation, acquires special importance.

It is advisable to consider a health care organization as a complicated, open, developing nonlinear, dynamic socio-economic system. Its interaction with the environment can be presented as the mechanism of transformation of entrances (labour, financial and material resources) and exits (final product: medical services in the form of the public welfare, and not the private goods). The changes in health care organization promote development in case of the system use of economic, organizational technological, informational and other innovations, implementation of which is based on their interrelation and interference, in view of the sector peculiarities. The changes in healthcare promote the success (performance improvement) only provided they are concentrated not only on one variable, but on a few variables at the same time.

The use of the "golden section" (0.38:0.62) ratio in different spheres of activity, such as science, architecture, art and biology, makes it possible to ensure the balance and proportionality of interrelated elements of the systems. The application of the "golden section" formula in economy enables one to set the rational proportions and correlations in the organization activity.

The authors propose to rank the manageable and unmanageable changes as applied to the health care organization. They propose to single out the most significant changes from all considered types of changes and to determine which of them are the manageable changes that are completely depending on the initiative of the health care organization. As far as health care is a social sphere sector, such types of changes as political and legal, economic (including the level of the sector financing), demographic ones, are the unmanageable changes: the organization is not able to influence them to a greater extent.

At the same time, the organizational and technological changes are the manageable changes. The authors propose to determine the share of the manageable changes in health care organization at the level of not less than 38 % of the total volume of the changes that are being implemented, with the use of the proportionality rule and the factor analysis to improve the performance and the sustainable development.

In case the health care organization is not able to achieve this level:

- 1) It completely depends on the management of the outside (budget organizations, financed in accordance with the fixed estimate);

Table 2

Optimization model of management of health care organizations by way of ranking of manageable and unmanageable changes

External and internal changes	Changes weight factor
<i>External changes (unmanageable):</i>	
Political and legal (including legislation changes in health care factor)	0.14
Economic (including sufficiency and shortage of finance)	0.24
Demographics	0.24
Total	0.62
<i>Internal changes (manageable):</i>	
Organizational (including the innovative reforms: organizational, informational models, etc.)	0.24
Technological (including the use of innovative technologies)	0.14
Total	0.38
<i>Sum total</i>	<i>1.0</i>

2) It is not able to achieve the required effectiveness and development sustainability. In this case, it may lead to the growth of the bill payable and even the shot down of the medical organization.

The authors propose the optimization model of management of health care organizations by way of ranking of manageable and unmanageable changes, ensuring the rational proportions and correlations of external and internal changes for health care organization (Table 2).

According the form of Newton binomial the “golden section” formula can be presented by way of equation:

$$1 = (0.62 + 0.38)^m \quad (1),$$

where power m determines the number of divisions of one in the ratio 0.38 : 0.62.

It is advisable to use “golden section” ratio in a hierarchic way in the proposed correlation of the external and internal changes in the health care organization.

The external changes (0.62) — unmanageable ones — are distributed in proportion to correlations 0.38 (0.62) — political and legal, economic changes and 0.24 (0.38) — demographic ones. In turn, 0.38 (0.62) political and legal, economic changes are distributed for 0.24(0.62) — economic and 0.14(0.38) — political and legal changes. The economic changes have the profound effect (including the level of financing). It is confirmed with the performance ranking of the health care system effectiveness.

The internal changes (0.38) — manageable ones — are distributed in proportion for correlations 0.24(0.62) — organizational changes and 0.14(0.38) — technological ones. In turn, in 0.24 (0.62) organizational changes 0.09 (0.38) — the share of the innovative reforms (organizational, informational models, etc.); in 0.14 (0.38) technological changes 0.053 (0.38) — the share of innovative technologies in the total volume of medical services. Thus, the successfulness of the manageable changes in many ways depends on the innovations.

In our opinion, when the sum of the weight values of the manageable changes reaches the level of not less than 0.38, the role of health care organization as a self-regulating system in performance improvement when the changes are implemented on the micro-level, enhances. It promotes effectiveness improvement of the whole health care system, on a whole.

Opportunities of using of management optimization by way of ranking of manageable and unmanageable changes in the health care sphere of different management levels

The opportunities of using management optimization by way of ranking of manageable and unmanageable changes in the health care management at different levels are confirmed with high-performance indicators at the micro-, meso- and macro levels in the sector:

1. As the result of external changes at the macro- and meso-level: progressive political and legal changes, improvement of financing, including due to implementation of the national project “Health” — improvement of the performance indicators of the sector, also characterized by demographics improvement, death-rate reduction ensuring the human potential maintenance:

— in Russia on a whole: total death-rate reduction for 16.1 %, maternal mortality for 13 %, infant mortality for 32.7 %, mortality from blood circulation system diseases for 17.1 %, from stroke for

28.4 %, from tuberculosis for 36.9 %, from road accident for 26.3 %¹¹; in the year of 2013 compared to the year of 2005: birth rate increase for 30 %, population natural increase 0.2 in the year of 2013 (in the year of 2005 — the factor of the population natural loss was -5.9)¹²;

— in Yekaterinburg in the year of 2013 compared to the year of 2000: total death-rate reduction for 24 %, maternal mortality for 7.5 times, infant mortality for 53 %; for the year of 2013 compared to the year of 2000: birth rate increase for 72 %, population natural increase 3.2 in the year of 2013 (in the year of 2000 the factor of the natural population loss was -6.3)¹³.

2. As a result of internal (manageable) changes implemented at the meso- and micro-level (in health care organizations in Yekaterinburg), namely:

— implementation of innovative economic, organizational, therapeutic technologies at micro-level (in health care organizations in Yekaterinburg): the mortality from trauma decreased for 58 %, the number of treated patients increased 1.6 times, the primary disablement from trauma decreased for 31 %;

— innovative organizational changes at the meso- and micro-level (including implementation of the target programs of “Traumatology”, “Rehabilitation of the patients of the traumatologic profile”, “Disabled person”, “Trauma prevention in Ordzhonikidzevsky district of Yekaterinburg”) — improvement of performance factors of the sector, facilitating the return to work of patients of the working age, which are involved in the gross domestic product formation in the city of Yekaterinburg: reduction of the mortality rate of the working age population from 7.14 in the year of 2000 to 4.2;

— in the year of 2013 (for 41 %); decrease of disability rate of the working age population (for 10 000 people) from 42.9 in the year of 2006 to 27.4 in the year of 2013 (for 36 %)¹⁴.

The conducted analysis shows that the number of the obtained indicators for Yekaterinburg are much higher than in Russia on the whole.

For the development of the theoretical and methodological approaches to changes management the authors have determined an opportunity, in case the set proportions are observed, to achieve the improvement of health care performance factors at the level close to 38 %. This will facilitate more harmonious development in terms of reforms of the sector.

Conclusion

1. The changes should be manageable. They should take into account the interests of all the interested parties, such as the population, organizations on a whole.

Health condition of the population as the labour resource and element of the economy to a great extent depends on an adequate amount of expenditures for health care and the level of medical aid organization. Maintenance and improvement of labour potential has a significant influence on the national safety and economic growth of the state.

The benefits of the population consist in improvement of the health factors, improvement of the quality of life and opportunities for career development of full value.

The benefits of the organization consist in the achievement of the positive synergetic effect due to the raise of the changes management level, implementation of innovative economic, therapeutic, organizational technologies and development sustainability.

The benefits of the state from the raise of the changes management level in health care sphere: on the one hand, the medical, social and economic due to reduction of losses from diseases, mortality, and disability is achieved, on the other hand, the sector high-performance indicators facilitate the maintenance of the human capital and the return to work of patients of the working age, which are involved in the GDP formation.

2. The conducted research and the obtained results confirm the opportunities of using management optimization by way of ranking of manageable and unmanageable changes in the sphere of the health

¹¹ Resolution of the First National Congress of the Doctors in the RF // Health care. The Magazine of the Performance Situations of the Head Doctor. 2012. No.11. P. 120.

¹² Russian Statistical Year-book. 2014: Stat. Digest / Rosstat. M., 2014. 693 p.

¹³ The Key Indicators of the Population Health and Work of the Medioprophyllactic Institutions in the city of Yekaterinburg in 2000–2013 (Digests of Health Care Department of Administration of Yekaterinburg. Yekaterinburg, 2002. (p. 3-22); 2010. (p. 7); 2011. (p. 5, 7); 2012. (p. 7-9); 2014. (p. 6, 7)).

¹⁴ The Key Indicators of the Population Health and Work of the Medioprophyllactic Institutions in the city of Yekaterinburg in 2000–2013 (Digests of Health Care Department of Administration of Yekaterinburg. Yekaterinburg, 2002. (p. 3-22); 2010. (p. 7); 2011. (p. 5, 7); 2012. (p. 7-9); 2014. (p. 6, 7)).

care management at different levels: the increase of the government participation in the sector financing, on the one hand, enhancement of the role of the health care organization as a self-regulating system, on the other hand, facilitate the raise of effectiveness and sustainability of development of the health care system as a whole.

3. The high performance indicators, obtained during the research on the example of health care, confirm the necessity to increase the government financing of the social sphere, to raise the human capital at the level of external changes and implementation of innovative changes of its sectors at the level of internal (manageable) changes facilitating the raise of qualitative characteristics of the human capital, the gross domestic product increase of the country and the harmonious socio-economic development of the state on a whole.

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References

1. Tatarkin, A. I. (Ed.). (2011). Samorazvivayushchiesya sotsialno-ekonomicheskie sistemy: teoriya, metodologiya, prognoznnyye otsenki [Self-developing socio-economic systems: theory, methodology, predictive estimates]. T. 1. *Teoriya i metodologiya formirovaniya samorazvivayushchikh sotsialno-ekonomicheskikh sistem* [Vol. 1. Theory and methodology of formation of self-developing socio-economic systems]. Moscow; Yekaterinburg: Institut ekonomiki UrO RAN [Institute of Economics, UB RAS], 272.
2. *Strategicheskie orientiry ekonomicheskogo razvitiya Rossii. Nauchnyy doklad* [Strategic key points of economic development of Russia. Scientific report]. In-t ekonomiki RAN; In-t sovremennogo razvitiya; koordinator proekta chlen-korr RAN R. S. Grinberg [Institute of Economics of RAS; the Institute of Contemporary Development; Project coordinator corresponding member of the RAS R. S. Grinberg]. St. Petersburg: Aletaya, 664.
3. Ekonomika znaniy poshla na papert. Forum [The knowledge-driven economy went to a porch. Forum]. (2015). *Argumenty nedeli* [Arguments of a week], 6(447), 3.
4. Abalkin, L. I. (2008). *Rossiyskaya ekonomicheskaya mysl. Istoriya i sovremennost* [The Russian economic thought. History and present]. Moscow, Institut Ekonomiki RAN [Institute of Economics, RAS], 264.
5. Nelson Richard, R., Uinter Sidney, J. (2002). *Evolutsionnaya teoriya ekonomicheskikh izmeneniy* [Evolutionary theory of economic changes]. Moscow: Delo, 536.
6. Shumpeter, Y. (1995). *Teoriya ekonomicheskogo razvitiya* [The economic development theory]. Moscow, Progress.
7. Druker, P. F. (2009). *Bizness i innovatsii* [Business and innovations]. Translated from English, Moscow: I. D. Willyams, (95, 96, 101, 102), 432.
8. Mensh, G. (1979). *Staltnate in Technology: innovation overcome the depression*. Cambridge (Mass), 14.
9. Marenkov, N. L. (2009). *Innovatika. [Innovatics]* (2d. ed.). Moscow: Publishin House Liberkom, 170.
10. Milner, B. Z. (2006). Kontseptsiya organizatsionnykh izmeneniy v sovremennykh kompaniyakh [Conception of organizational changes in modern companies]. *Problemy teorii i praktiki upravleniya* [Problems of management theory and practice], 1, 33.
11. Hammer, M. & Champy, J. (1997). *Reinzhiniring korporatsii: Manifest revolyutsii v biznese* [Reengineering the Corporation: A Manifesto for Business Revolution]. Translated from English. St. Petersburg: St. Petersburg State University Publ., 191.
12. G. Elton Mayo (1939). *Management and the Worker*. Cambridge, Mass: Harvard University Press.
13. Maslow. (1943). A Theory of Human Motivation. *Psychological Review*, 50, 370-396.
14. McClelland, D. C. (1970). The Two Faces of Power. *Journal of International Affairs*, 24, 30-41.
15. Herzberg, F, Mauzer, B, Snyderman, B. B. (1959). *The Motivation to Work*. New York: Wiley.
16. Korotkov, E. M. (1997). *Kontseptsiya menedzhmenta* [Management concept]. Moscow: Deko.
17. Mintzberg, G. (2001). *Struktura v kulake. Sozdanie effektivnoy organizatsii* [Structure in fist: setup of an effective organization]. Translated from English by Yu. N. Kapturyevskiy. St. Petersburg: Piter, 512 (Business best-seller).
18. Gitelman, L. D. (1999). *Preobrazuyushchiy menedzhment. Lideram reorganizatsii i konsultantam po upravleniyu* [Transforming management. For leaders of reorganization and management consultants]. Moscow: Delo, 496.
19. Utkin, E. A. (1997). *Upravlenie kompaniy* [Company management]. Moscow: Assotsiatsiya avtorov i izdateley «Tandem»; izdatelstvo EKMOs [Authors and publishers association "Tandem"; EKMOs Publ], 304.
20. Malysheva, L. A. (2004). *Upravlenie organizatsionnymi izmeneniyami na osnove kontrollinga* [Management organizational changes based on controlling. Management of organizational changes on the basis of controlling]. Yekaterinburg: Institut ekonomiki UrO RAN [Institute of Economics, UB RAS], 360.
21. Tatarkin, A. I. & Tatarkin, D. A. (2011). Samorazvivayushchiesya sotsialno-ekonomicheskie sistemy: teoriya, metodologiya, prognoznnyye otsenki: v 2-kh t. [Self-developing socio-economic systems: theory, methodology, predictive estimates: in 2 vol.]. Ros. akad. nauk, Ural. otd-e [Ural Branch of the Russian Academy of Sciences], Edited by Tatarkin A.I. Moscow; Yekaterinburg: Ekonomika Publ.; UB RAS Publ., 308.

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